

TOOBA GUL  
GSA TEST

PART-II

SECTION-I

Q No-2  
(b)

## 1. SOLAR SYSTEM:

"Solar system is the gravitationally bound system of the Sun and the masses that orbit it."

## 2. COMPOSITION OF SOLAR SYSTEM

Solar system consists of the Sun and everything bound to it by gravity - the planets Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune are the parts of solar system. Dozens of moons, asteroids, meteoroids and comets are part of our solar system. It is in elliptical shape. The Sun is the biggest object in the solar system and contains

more than 99% of the solar mass.

### 3. COMPONENTS OF SOLAR SYSTEM:

## SOLAR SYSTEM



#### i- Planets:

Planets are the bodies that revolve around the sun in definite orbits. Our Earth is the 3<sup>rd</sup> largest planet of solar system. There are eight planets in the solar system.

#### ii- Dwarf planets:

Dwarf planets are celestial bodies that orbit the sun and have enough mass to be rounded by their own gravity. E.g., Pluto, Eris etc.

#### iii- Satellites:

Satellites are the objects that orbit around a large celestial body, like a planet or moon. There are two main types: Natural satellites and Artificial satellites.

#### iv- Asteroids:

Asteroids are small rocky objects that orbit the Sun. Most asteroids occur between Mars and Jupiter.

#### v- Comets:

Comets are icy bodies that orbit the Sun, often with a bright tail of gas and dust. They originate from the outer solar system.

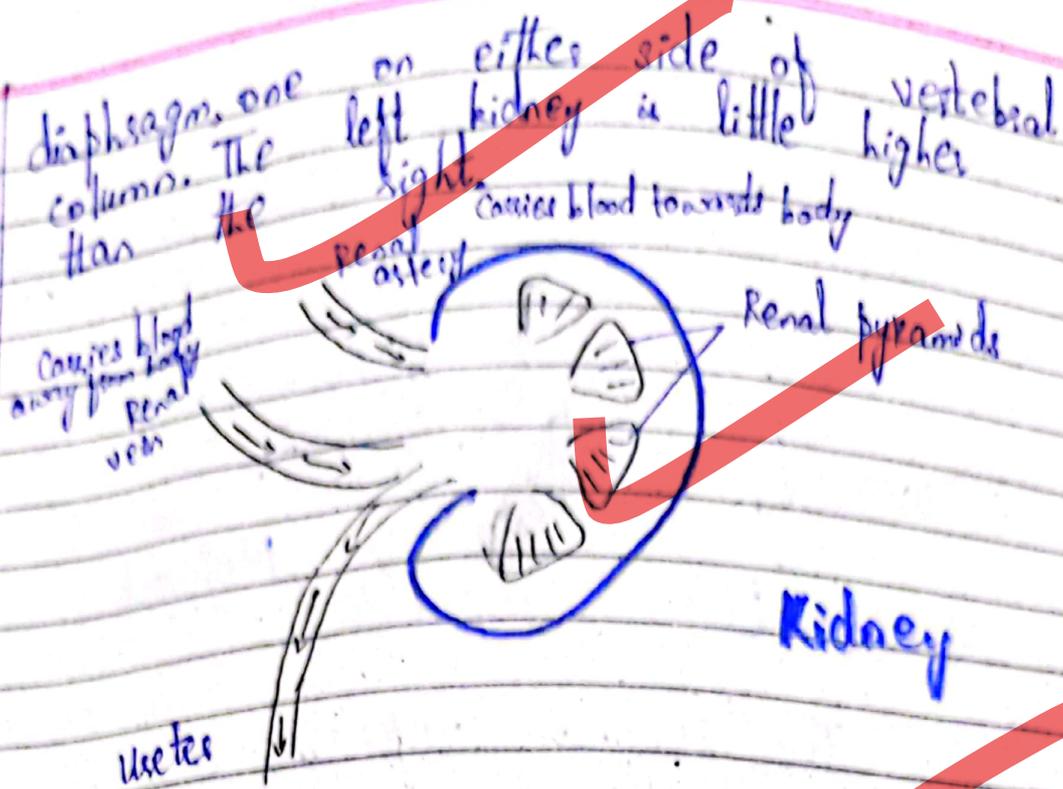
#### vi- Meteoroids:

Meteoroids are small, rocky or metallic objects floating in space, often fragments from asteroids or comets.

Q2(a)

### 1- HUMAN KIDNEYS:

Human kidneys are an important component of excretory system. Each kidney is 10cm long, 5cm wide and 4cm thick and weighs about 120g. They are placed against the back wall of abdominal cavity just below

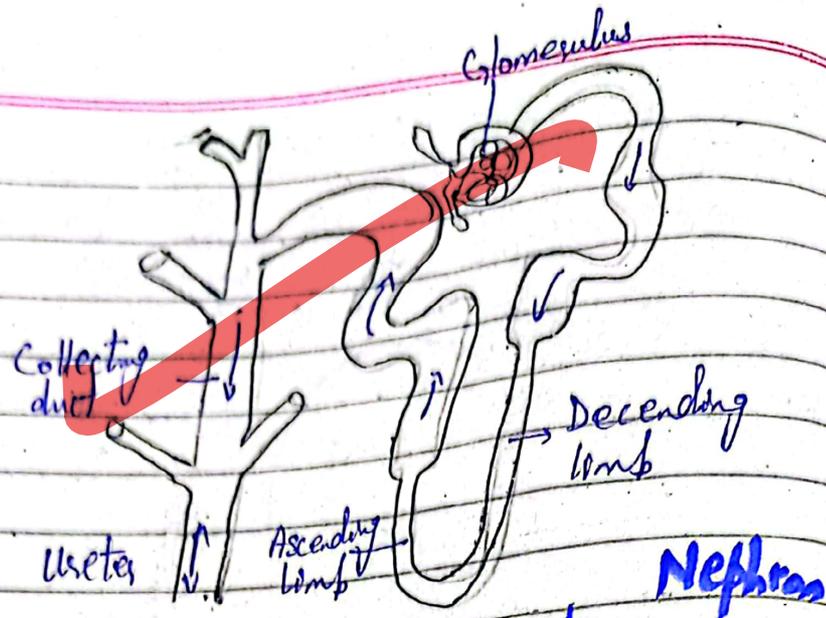


## 2-WORKING OF HUMAN KIDNEYS:

The main function of kidney is urine formation which takes place in three steps.

### i- Pressure filtration:

When blood enters the kidney via renal artery, it goes to many arterioles, and then to the glomerulus. The pressure of the blood is very high and so most of the water, salts, glucose and urea of blood is forced out of glomerular capillaries. This material passes into Bowman's capsule and now is called glomerular filtrate.



### ii - selective Reabsorption:

The second step is the selective reabsorption. In this about 65% of the glomerular filtrate is reabsorbed into blood capillaries surrounding renal tubule. It occurs through osmosis and active transport. Some water and most of the salts and glucose is reabsorbed from the proximal convoluted tubule. Here salts are reabsorbed by active transport and water by osmosis. The descending limb of loop of Henle allows the reabsorption of water while the ascending limb of loop of Henle allows the reabsorption of water.

### iii - Tubular Secretion:

The third step is tubular

secretion. Different ions, creatinine and urea are secreted from blood into filtrate in renal tubule. This is done to maintain blood at normal pH (7.35-7.45). Hence, kidney regulates the concentration of water and salts in human body.

(c)

## 1. INTRO

### 1- BALANCED DIET:

"A diet with right amount of nutrients for good health is called balanced diet."

Balanced diet is a diet which contains the right amount of essential nutrients in it. Carbohydrates, proteins, fats, minerals and vitamins are part of it.

### 2. IMPORTANCE OF BALANCED DIET FOR HEALTHY LIVING:

Balanced diet is essential for a healthy lifestyle. It fuels human body in the following ways.

i- Boosts Energy in the body.  
Balanced diet provides the right mix of proteins and fats for energy.

ii- Strengthens Immunity.  
Vitamins and minerals (like vitamin C) keep immune system strong.

iii- Keeps Bones and Muscles strong.  
Calcium, proteins and other nutrients keep bones and muscles strong.

iv- Maintains Mental health.  
Nutrients like Omega-3a supports brain health and mood.

v- Prevent diseases.

Reduces risk of chronic diseases like diabetes, heart disease and cancer.

Q.2  
(d)

1-Cell:

"Cell is the structural and functional unit of life."

The structure of the cell consists

of many parts, each part performing a specific function. All organisms are made up of cells and it is the smallest unit of living organism.

## 2- DIFFERENTIATE BETWEEN PLANTS, ANIMAL AND MICROORGANISMIC CELL:

Plant cell  
1- Plant cells have cell wall made of cellulose.

Animal cell  
Animal cells do not have cell wall.

Microorganism cell  
Cell wall is present in some bacteria and fungi.

2- Plant cells have chloroplast.

Chloroplast is absent in animal cell.

Chloroplast is present in some like algae.

3- Plant cells have a large vacuole.

Animal cells have no vacuole.

Some microorganisms have vacuole e.g., Fungi.

4- Plant cells have flagella only in gametes.

Animal cells have no flagella.

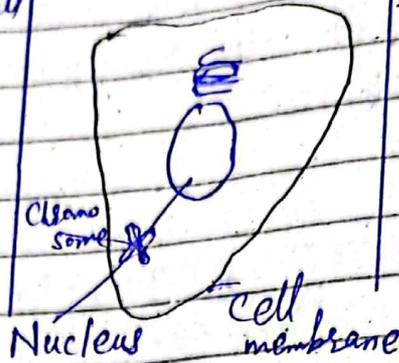
Some have flagella for movement.

Plant cell

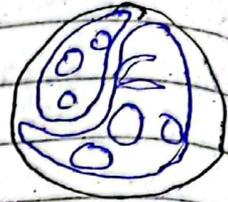
cell wall



Animal cell



Microorganism cell



Q.3. (a)

## 1- GLOBAL WARMING:

Global warming is a global issue. It is instigated by human activities. It is perceived as a great threat to the environment.

Definition:

"Global warming is an average and gradual increase in the temperature of earth's atmosphere."  
(IPCC)

Global warming is causing climate patterns to change. However, it represents

only one aspect of climate change.

## 2- CAUSES OF GLOBAL WARMING:

Following are the causes of global warming.

### i- Population Explosion:

Rapid population expansion along with industrialization is the major cause of global warming. A higher population leads to increasing product demand and consumption patterns.

### ii- Rapid Urbanization:

Urbanization is affecting the environment in different ways. African cities are projected to be home to nearly 60% of the continent's population by 2050. Urban areas exhibit higher air and surface temperatures than their surrounding rural areas, resulting in increase in global warming.

### iii- Rapid Industrialization:

Human activity has increased the emissions of greenhouse gases to the atmosphere. Since the start of

Industrial revolution, in 1750, human activities like burning fossil fuels have increased the global warming.

iv - Eruption of wildfires:  
Due to burning of wildfires the amount of greenhouse gases emitted in the atmosphere by forest fires increase rapidly. This contributes to the global warming.

v - Volcanic Eruptions  
Volcanoes ~~also~~ release  $CO_2$  and other GHGs, when they erupt, they lead to climate warming and climate change.

vi - Weapon production and usage:

Militaries consume enormous fossil fuels which contributes to global warming. For example, US would be 47th highest emissions total worldwide ~~emot~~

vii - Electrical Appliances (CFCs):

CFCs absorb light in infrared spectrum like  $CO_2$  does not. These contribute to global warming.

(b) Q3

## 1 ECLIPSE.

"The obscuring of one astronomical object by another is called Eclipse."

## 2- TYPES OF ECLIPSES.

There are two types of eclipses.

- i- Solar Eclipse
- ii- Lunar Eclipse

### a- Lunar Eclipse:

The Moon moves in an orbit around Earth, and at the same time Earth orbits the Sun. Sometimes, Earth moves in between the Sun and the moon. When this happens, Earth blocks the sunlight that is reflected by the Moon. Instead of light hitting the Moon's surface, Earth's shadow falls on it. This is called lunar Eclipse. It occurs only when the Moon is full.

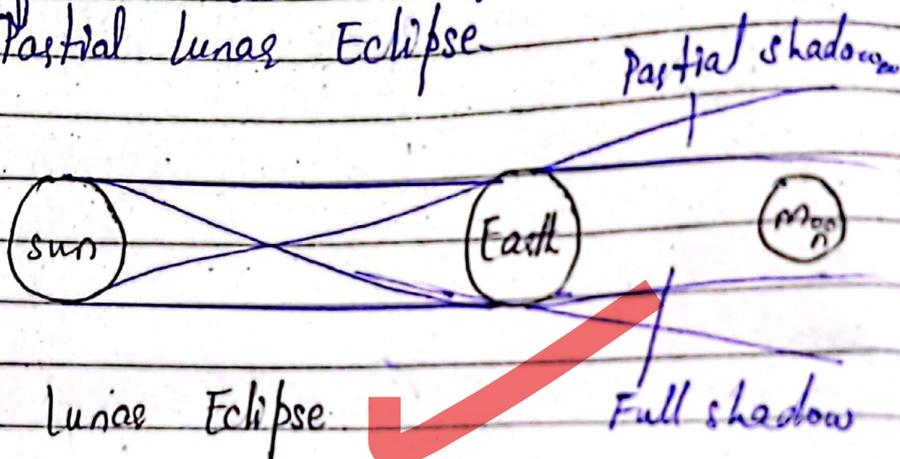
There are two types of lunar eclipses:

- i- Total lunar eclipse
- ii- Partial lunar eclipse

Total Lunar Eclipse:  
When the Earth is exactly aligned on the same line joining the centers of the Sun and Moon, such an eclipse is called total lunar eclipse.

Partial Lunar Eclipse:

When Earth is above or below the central line, joining the center of Sun and Moon, it is called Partial Lunar Eclipse.



Solar Eclipse:

When Moon comes between the Earth and the Sun, it is called Solar eclipse. When this happens, Moon blocks the light from the Sun to reach the Earth. This happens once every 18 months.

There are three types of Solar Eclipse

- i- Total solar eclipse
- ii- Partial solar Eclipse
- iii- Annular solar eclipse.

Total solar Eclipse:

When moon is exactly aligned on the same line joining the center of the sun and Earth it is called total solar eclipse.



Solar Eclipse

Partial solar Eclipse:

When the Moon is above or below the central line joining the center of sun and Earth. It is called partial solar eclipse.

Annular solar Eclipse:

When the moon appears smaller than the sun and sun appears as bright ring around it. This configuration

of Sun, moon and Earth line up in a straight line during an annular spectrum and is called Annular Solar Eclipse.

(d)

## 1- PRESERVATIVES:

" Preservatives are added to the food products, pharmaceuticals and cosmetics to prevent spoilage and extend shelf life by inhibiting the growth of harmful microorganisms.

## 2- FOOD PRESERVATION METHODS:

Food preservation is to keep food safe and fresh for longer period of time through several methods. These include:

i- Refrigeration:

Refrigeration slows down bacterial growth.

For example: Storing vegetables in the fridge.

## ii- Freezing:

Freezing is about to stop bacterial growth.  
For example: Frozen peas, chicken and berries.

## iii- Canning:

It seals food in airtight containers and kills bacteria.

Example: Canned Tomatoes, jams or pickles.

## iv- Dehydration:

Dehydration removes moisture, prevents bacterial growth in food products.  
Example: Dried fruits and spices.

## v- Pickling:

It uses vinegar or brine to preserve food items.

Example: Carrots and onions.

## vi- Fermentation:

It uses beneficial bacteria.  
Example: Yogurt and cheese.

## vii- Salting:

Salting draws out moisture and prevents bacterial growth. e.g. Salt fish.

Q. 3. (K)

## 1- TSUNAMI:

"Tsunami is a series of enormous waves with strong currents created by an underwater disturbance."

This force creates waves that radiate outward in all directions away from their source. These are also called seismic sea waves.

### a- Causes of Tsunami:

Tsunami is caused by several factors:

- i- Violent seafloor movement associated with Earthquake, landslides and meteorite impact.
- ii- Most common cause is Earthquake. 72% of Tsunamis are generated by Earthquake.

## 2- Cyclones:

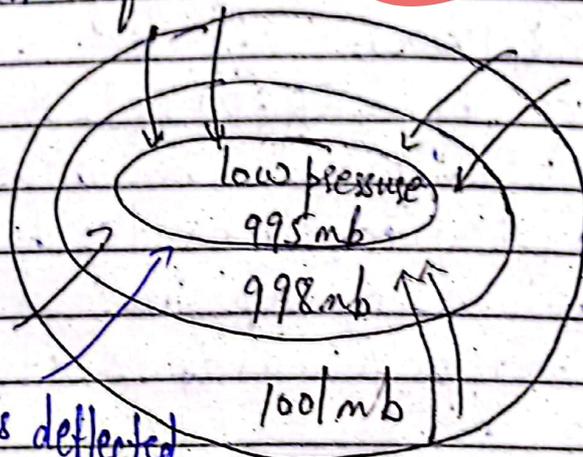
"Cyclone is any weather system that in which wind circle inward toward a low pressure center."

## a. Classification of cyclones:

Cyclones are known by different names in different regions of the world.

- i- North Atlantic Ocean and Eastern North Pacific, they are called hurricanes.
- ii- Western North Pacific, they are called typhoons.
- iii- Western South Pacific, they are referred as tropical cyclones.

### ~~Formation of clockwise~~



winds deflected toward left.

### CONCLUSION:

Cyclones are dangerous because they can produce extreme winds, heavy rainfall with flooding and damaging storm surge.

## SECTION-II

Q.No. 7

(B)

Solution:

In the given code language ~~BROTHER~~ KENWOOD is written as RRGWICL.

KENWOOD

RRGWICL

On observing it closely, the first letter of KENWOOD equates with last letter of RRGWICL. In this way it is compared in a way as 1-step forward, two-step backward, 5-step backward, 0-step forward, 8-step backward, 3-step forward, 12-step forward. Hence, for

PANASONIC it is

OZRKAIYBQ

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Q-7 (C)

Solution:

Let the number be  $x$

$$40\% \text{ of } x = \frac{2}{3} \text{ of } y$$

To be required:

Ratio of first number to the second number = ?

Solve:

$$40\% \times x = \frac{2}{3} y$$

$$\frac{40}{100} x = \frac{2}{3} y$$

$$\frac{2}{5} x = \frac{2}{3} y$$

$$\frac{2}{5} \times \frac{3}{2} = x : y$$

$\frac{3}{5} = \frac{x}{y}$	Answer.
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~~Solve:~~

Q.7 (A)

Solution:

Let the number of men =  $x$

The Number of women is half of number of men =  $\frac{1}{2} x$

Afterwards, men leave the bus = 10 men

women entered = 5 women

To be required passengers entered the bus = ?

∴ According to the given situation

$$n + \frac{1}{2}n \text{ --- ①}$$

$$n - 10 \text{ --- men --- ②}$$

$$\frac{1}{2}n + 5 \text{ --- Women --- ③}$$

Subtracting ③ and from ②

$$n - \frac{1}{2}n = -15$$

$$\frac{n}{2} = -15$$

$$n = -30 \text{ Answer}$$

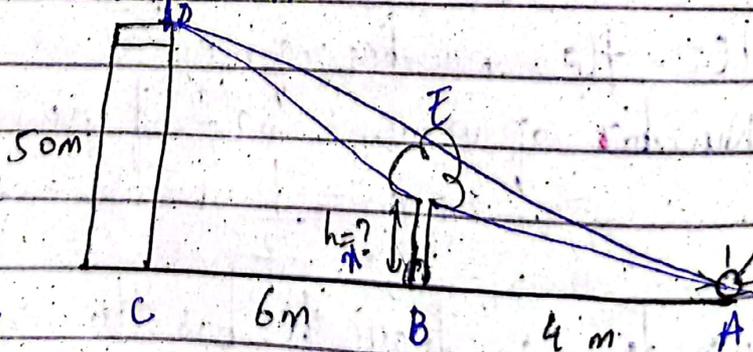
Q.7 (D)

Solution:

Given = light source = 4m from tree

height of building = 50m

Tree distance from building = 6 meters



To be required = height of tree = ?

Solve:

According to triangular theorem, ratio of corresponding sides are equal.

The triangles ABE and ACD

$$\frac{AC}{AB} = \frac{CD}{BE}$$

$$\frac{6+4}{4} = \frac{50}{x}$$

$$\frac{10}{4} = \frac{50}{x}$$

$$10x = 200$$

$$x = 20m$$

Hence, the height of tree is 20m.

Q No. 6.

A

Solution:

$$20\% \text{ of } a = b$$

Required =  $b\%$  of 20 = ? of a

Solve:  $\frac{2b}{100} \times a = b$

$$\frac{1}{5}a = b$$

$$\frac{b}{5} \times 20 = \frac{1}{5} a$$

$$\frac{b}{5} = \frac{1}{5} a$$

$$b = 5a$$

or

$$\frac{1}{5} b = a$$



Q-6(A)

Solution:

Zahid and Basit = 3:2  
investment in business

Profit goes to charity = 5%

Zahid share = 8550 Rs

Total profit = ?

Solve:

$$\text{Basit share} = \frac{2}{5} \times \frac{1710}{8550}$$

$$= 3420 \text{ Rs}$$

Zahid share = 8550 Rs



$$\text{Total investment} = 3420 + 8550 \\ = 11970 \text{ Rs}$$

Profit goes to charity = 5%

$$\text{Then} = \frac{.5}{100} \times 11970 \\ = 5985 \text{ Rs}$$

$$\text{Hence the total profit} = 11970 + 5985 = \\ = \boxed{17955 \text{ Rs}}$$
